

STATE OF SOUTH CAROLINA)

(Caption of Case))

Application of Palmetto)

Utilities, inc. for an)

increase of rates and charges)

for the provision of sewer)

service and modifications to)

certain terms and conditions)

of the provision of sewer)

service)

(Please type or print)

Submitted by: Lisa LevineAddress: 2 Runnymede CtBlythewood, SC 29016BEFORE THE
PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA

COVER SHEET

DOCKET 2019 281 S
NUMBER: _____ - _____ - _____

SC Bar Number: _____

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DOCKETING INFORMATION (Check all that apply)

☐ Emergency Relief demanded in petition☐ Request for item to be placed on Commission's Agenda expeditiously☒ Other: Pre-hearing brief 2nd AMENDED

INDUSTRY (Check one)	NATURE OF ACTION (Check all that apply)			
<input type="checkbox"/> Electric	<input type="checkbox"/> Affidavit	<input type="checkbox"/> Letter	<input type="checkbox"/> Request	
<input type="checkbox"/> Electric/Gas	<input type="checkbox"/> Agreement	<input type="checkbox"/> Memorandum	<input type="checkbox"/> Request for Certification	
<input type="checkbox"/> Electric/Telecommunications	<input type="checkbox"/> Answer	<input type="checkbox"/> Motion	<input type="checkbox"/> Request for Investigation	
<input type="checkbox"/> Electric/Water	<input type="checkbox"/> Appellate Review	<input type="checkbox"/> Objection	<input type="checkbox"/> Resale Agreement	
<input type="checkbox"/> Electric/Water/Telecom.	<input type="checkbox"/> Application	<input type="checkbox"/> Petition	<input type="checkbox"/> Resale Amendment	
<input type="checkbox"/> Electric/Water/Sewer	<input checked="" type="checkbox"/> Brief	<input type="checkbox"/> Petition for Reconsideration	<input type="checkbox"/> Reservation Letter	
<input type="checkbox"/> Gas	<input type="checkbox"/> Certificate	<input type="checkbox"/> Petition for Rulemaking	<input type="checkbox"/> Response	
<input type="checkbox"/> Railroad	<input type="checkbox"/> Comments	<input type="checkbox"/> Petition for Rule to Show Cause	<input type="checkbox"/> Response to Discovery	
<input type="checkbox"/> Sewer	<input type="checkbox"/> Complaint	<input type="checkbox"/> Petition to Intervene	<input type="checkbox"/> Return to Petition	
<input type="checkbox"/> Telecommunications	<input type="checkbox"/> Consent Order	<input type="checkbox"/> Petition to Intervene Out of Time	<input type="checkbox"/> Stipulation	
<input type="checkbox"/> Transportation	<input type="checkbox"/> Discovery	<input type="checkbox"/> Prefiled Testimony	<input type="checkbox"/> Subpoena	
<input type="checkbox"/> Water	<input type="checkbox"/> Exhibit	<input type="checkbox"/> Promotion	<input type="checkbox"/> Tariff	
<input checked="" type="checkbox"/> Water/Sewer	<input type="checkbox"/> Expedited Consideration	<input type="checkbox"/> Proposed Order	<input type="checkbox"/> Other: _____	
<input type="checkbox"/> Administrative Matter	<input type="checkbox"/> Interconnection Agreement	<input type="checkbox"/> Protest		
<input type="checkbox"/> Other: _____	<input type="checkbox"/> Interconnection Amendment	<input type="checkbox"/> Publisher's Affidavit		
	<input type="checkbox"/> Late-Filed Exhibit	<input type="checkbox"/> Report		

STATE OF SOUTH CAROLINA
BEFORE THE PUBLIC SERVICE COMMISSION
DOCKET NO. 2019-281-S

IN RE:)	
)	AMENDED
APPLICATION OF PALMETTO UTILITIES)	PRE-HEARING BRIEF OF
INC. FOR AN INCREASE OF RATES AND)	LISA LEVINE, PRO SE
CHARGES FOR THE PROVISION OF)	
SEWER SERVICE AND MODIFICATIONS)	
OF CERTAIN TERMS AND CONDITIONS)	
RELATED TO THE PROVISION OF SEWER)	
SERVICE.)	
<hr/>)	

Pursuant to South Carolina Public Service Commission ("Commission") Docket No. 2019-281-S and Order No. 2020-33H, Lisa Levine, pro se, files this pre-hearing brief on certain issues in the current proceeding which concerns Palmetto Utilities Inc. ("PUI") request for rate relief and for the Commission to decide the ratemaking treatment for the purchase of the City of Columbia's ("City") sewer customers in 2013. This brief focuses on: 1) determining the best rate option proposed by PUI or other entities by considering what maximizes the benefit to the customers; 2) PUIs request that the Commission decide whether to allow the \$18,000,000 PUI paid to acquire City's specific sewer assets in 2013 become part of this or future ratemaking; and, 3) the treatment of certain operating costs in the current docket.

1. RATE OPTIONS

In numerous pre-filed witness testimonies, Ex Parte Briefings and town hall meetings, spanning several dockets, PUI has stated based on various sources that the average water consumption by a customer is 6000 gallons per month ("gpm"). The City's sewage billing rate is volumetric derived from the potable water consumption that it meters at each customer's address. The sewage cost associated with out of city water usage of 6000 gpm has been used for comparison as well as to justify the reasonableness of PUIs rate increase requests and to switch the former City customers from volumetric to fixed rate billing in docket no. 2017-228-S.

The Commission is not required to solely or in part consider comparable sewage rates in the surrounding areas when determining for or against PUIs rate increase request. PUI is unequivocally aware of this. In Mr. Daday's 2017 direct testimony when PUI requested fixed rate billing and a rate increase his response provides explicit confirmation:

DOES PALMETTO BELIEVE THAT ITS RATES SHOULD BE SET BY
REFERENCE TO WHAT THE CITY OR OTHER UTILITIES CHARGE?

No, it does not. Palmetto's rates should be based on a recovery of its own operating expenses and a reasonable return on its own investment. Although there may be points of comparison between Palmetto and other utilities, we believe that our request for rate relief should be judged on its own merits. Having said that, when considering whether Palmetto has or is sharing in the "pain" which some customers will experience from the requested rate increase, Palmetto believes it is appropriate to consider the benefits that have been realized (or will be realized) by customers in the PRC service area from being served by an investor-owned utility as opposed to a governmental utility.

On or about 1/2013- 4/2018 former City customers were billed on a volumetric basis using the 2012 out of city sewage rate schedule. After 4/2018 until present those customers were billed a fixed rate of \$52.10. During the 5 years that PUI based my bill on the 2012 rates I paid a total of \$166.28 less than had my rates changed each year in accordance with the out of city City rates. From the inception of the fixed rate until March 2020 I have paid a total of \$260.30 more than if my bill was based on the applicable out of city rates charged by the City. I am unable to extrapolate into the future due to uncertainties in the City rates but I assume that if my water usage remains the same the total payout to PUI will continue to increase. I am the only person living in my house and I am not on a fixed income. At the moment this spread is not overly onerous but it may be for others in different circumstances and if the range increases drastically and/or rapidly.

PUI is proposing a 3 part phase in plan to reach a monthly charge of \$66.62 spread over 3 years with set annual increases. An alternative option is to raise the rate by \$5.42 per month per ERC and not file another rate case for at least 18 months. The alternative option includes some accounting changes that would postpone the impact of particular expenses that increased.

The 3 year phase in plan will cost a customer \$2,223.80 whereas the one time rate increase guaranteed not to be changed for at least 18 months will cost \$2,070.72 if continued for the next 18 months for a total of 3 years. Assuming the one time increase remains in effect for the same period as the 3 year phase in the annual extra

amount paid to PUI per ERC is \$153.36 . If the 18 month rate is increased prior to the 3 year phase in then the annual extra will be unpredictability greater.

The 3 year option provides the customer with certainty while the 18 month does not. My preference is certainty however there is a factor in the 3 year option that raises concern. The same certainty the customer obtains is also afforded PUI . The issue is that PUI bases the service revenue on a constant number of ERCs. It seems that if the number of ERCs increases PUI will generate more service revenue than the targeted amount. Growing the customer base is one of the justifications PUI has stated for determining the size of the northern pipeline and building the Spears Creek Plant with features that will facilitate expansion from 12 million gallons per day to 18 or 20.

The Commission should give weight to the short and long term benefits of each option for the customer. If the Commission approves the 3 part phase in then the possibility of PUI increasing the ERC count should be given consideration to a rebate to the customers if the service revenue exceeds the listed revenue by some predetermined percentage or some other form of incentive to the customer.

The alternative option involves accounting concepts that I am unfamiliar with and cannot assess the risk associated with a potential rate increase request after 18 months. PUI has proposed these options because it satisfies its goal of recovery of operating expenses and satisfactory earnings. I oppose the rate increase but I recognize the need to maintain and/or upgrade infrastructure that is critical to

preventing environmental contamination and negative human health effects. It is prayed that the better option for the consumer is selected whether proposed by PUI , the ORS or the SC OCA.

2. RATEMAKING TREATMENT OF \$18.0 MILLION TO ACQUIRE CITY SEWER COLLECTION AND TRANSPORTATION SYSTEM.

Item 11.c. in the Amended Application Docket No. 2019-281-S PUI seeks inclusion of approximately \$18.0 million in rate base associated with the 2013 acquisition of the sewer collection and transportation system from the City of Columbia. The Commission deferred making this determination in the August 2017 PUI rate case docket no. 2017-228-S. There are no regulations in SC that require or disallow the Commission to satisfy PUIs request. The Commission has discretion on this matter. Levine does not support the inclusion in this or any future ratemaking.

An entity of the Pacolet Milliken, LLC ("Pacolet") purchased the City's sewer lines and customers in a specific area outside the City limits through an Asset Purchase Agreement in 2013. The purchase was not ordered by any state or federal jurisdiction. The City customers did not seek or request the change in ownership of their sewer service. Pacolet recognized a business opportunity contiguous to its existing customers in the area. Adding the City customers afforded PUI economies of scale in operating its treatment plant, a strong business case for upgrading and expanding their decades old existing Spears Creek Treatment Plant, retiring the controversial RIBs

where treated water was dispersed and securing a modifiable infrastructure that could serve the northeast region of Richland County which has experienced rapid and significant residential growth from 2013 to the present.

In 2003 Burkhold Planning & Management with engineering assistance from J.E. Wood and Associates, LLC prepared a report for PUI entitled, "Wastewater Facilities Plan, Palmetto Utilities, to be included in the Metro Columbia Facilities Plan Update 2003, September 2003 that predicted based on the previous 17 years and planned known developments that the area will continue to have a high growth potential.

The known developments will generate an estimated 1.5 to 2.0 million gallons of wastewater at buildout. The plan is designed to satisfy a 20-year need, represented by a wastewater generation flow of 8,479,459 gallons per day of domestic water. When commercial/industrial demands and non-excessive infiltration/inflow are added and the flow is peaked, the total flow generated is 22,894,515 gallons per day.

I moved to the area in 2004 and have witnessed the enormity and expansiveness of the growth. One of the major flaws associated with the growth has been the lack of infrastructure planning and implementation by the City, County and state. Despite the inertia to upgrade municipal services the City did not seek buyers for the sewer system PUI acquired.

In the allowable ex parte briefing of 9/17/2019 to the Commission PUI included a corporate organization chart showing Pacolet Milliken, LLC presiding over Ni Pacolet Milliken Utilities, LLC who then presides over PUI, Palmetto Wastewater Reclamation,

LLC and Ni Florida. The importance of mentioning this structure is to introduce Pacolet Milliken's own description of their business model.

Pacolet Milliken is a family-owned investment company with a multi-generational investment horizon. Its long-term economic goals are to increase the intrinsic value of its business, while meeting the dividend expectations of its shareholders.

Pacolet operates through two divisions: Real Estate and Energy/Infrastructure. We manage these two divisions holistically, balancing non-cash value creation and near-term cash flows, stabilized assets and development projects, and organic growth and acquisitive growth, all in a manner designed to meet shareholder objectives.

We embrace our shareholders' mandate to operate at the intersection of profitability and values. Pacolet is not merely a financial enterprise, but also a vehicle through which shareholder values are expressed in business strategies that improve the communities and world in which we live. We endorse the notion that *how* we make money, is as important as *how much* money we make.

We own both operating companies and project investments. We look for defensible, middle market niches within compelling trends, such as capital inflows into renewables. We invest with institutional discipline, but are more patient about achieving superior returns than rigid IRR investors (who may seek to monetize gains as soon as possible), and thus may hold our assets longer than investors with rigid exit requirements.

Pacolet Milliken, Ni America and Palmetto Utilities were the subject of an article in the April 23, 2015 (vol 16, issue 4) edition of Global Water Intelligence further substantiating that the City purchase fit neatly with PUIs business model.

South Carolina-based family office Pacolet Milliken has emerged as the new owner of Ni America, the multi-state regulated water business put up for sale by private equity house Metalmark Capital at the end of last year.

The reluctance of listed investor-owned water utilities to pay rich rate base multiples for assets of this sort means that Ni was always more likely to be picked up by a financial sponsor. Private equity-backed Corix – which already has a presence in South Carolina following its 2012 purchase of Utilities, Inc. – and Aquila Infrastructure (which has been looking to add to its water portfolio since taking a stake in Thames Water in 2013) are both understood to have circled the asset, although the final price has not been made public.

"I believe that somebody paid well into the double digits on an EBITDA multiple, and I find it hard to believe that that's going to be easy to make work," one seasoned market veteran commented to GWI.

Pacolet Milliken is based in Spartanburg, just a stone's throw from Ni's largest operation (Palmetto Utilities), and will thus have the comfort of dealing with a known regulator, given that the South Carolina Public Service Commission already regulates another of Pacolet Milliken's assets, the Lockhart Power Company.

With net current assets in excess of \$100 million, Pacolet Milliken's financial strength was never an issue, and its status as a family office means that it can afford to maintain a considerably longer investment horizon than a traditional private equity investor. The attraction of regular cashflows via dividend payouts means that the final decision is likely to have been less driven by the need to achieve a high return on investment, and this is likely to be one of the factors which enabled Pacolet Milliken to price its competitors out of the market.

The idea of a family office controlling a US investor-owned water utility is not new – American Water was for many years in the hands of the Ware family, while Nasdaq- listed Artesian Resources is still effectively run by the Taylors.

"You can't afford to pay a huge premium and think you're going to cost-save your way to profitability," commented our source. "The only way the math is going to work is if you think that you're going to get growth."

Despite the fact that the sale of the municipal water system in nearby Columbia is now off the cards, the prospects for acquisitive growth are likely to be rosier going forward, given that Ni is understood to have been relatively capital constrained under Metalmark's ownership.

The potential for organic expansion in South Carolina is also strong. A study conducted by United Van Lines earlier this year found that South Carolina was the second most popular state in the Union in terms of inbound house moves in 2014, and Ni is well positioned to take advantage of that dynamic. <https://www.globalwaterintel.com/global-water-intelligence-magazine/16/4/general/ni-america-sale-turns-into-a-family-affair>

The purchase of the City system may have benefited the City financially because of the purchase price and the fees PUI paid to continue processing its newly acquired customers until PUIs Spears Creek Plant was updated at a cost of \$15 million, the

completion of the northern pipeline that connected the former City customers to the Spears Creek facility at a cost of \$32 million and the installation of the \$19 million Wateree Discharge Pipeline so the controversial rapid infiltration basins could be retired as well as being a solution to the community outrage that nixed the discharge into a waterway close to the plant. Environmental benefits and reduction in discharge compliance issues experienced by the City may have also resulted from the purchase as PUI asserts however they have not offered any evaluation of this claim.

From a regulatory point of view the South Carolina General Assembly is confronting ratemaking issues that clearly state the handling of acquisition recovery.

TO AMEND THE CODE OF LAWS OF SOUTH CAROLINA, 1976, BY ADDING SECTION 58-3-141 SO AS TO PREVENT UTILITIES FROM RECOVERING CERTAIN NONALLOWED EXPENSES FROM RATEPAYERS, TO ALLOW THE COMMISSION TO EVALUATE UTILITY EXPENSES ON A CASE-BY-CASE BASIS ...

Be it enacted by the General Assembly of the State of South Carolina:

SECTION 1. Article 1, Chapter 3, Title 58 of the 1976 Code is amended by adding:

"Section 58-3-141. (A) In the determination of reasonable operating expenses, no electric, natural gas, water, or sewer utility shall be permitted by the commission to recover from its ratepayers any direct or indirect expenditure made by such public utility for:

...(11) merger and acquisition activities including acquisition premium costs and fair value or purchase price adjustments; and

(12) expenses the commission finds to be unreasonable, unnecessary, or not in the public interest.

(B) Any direct or indirect expenditure made by a public utility for the purposes identified in subsection (A) must be paid for by the public utility's shareholders or owners and must not be considered as reasonable operating expenses for ratemaking purposes by the commission.

(C) Revenues generated by South Carolina ratepayers may not be used on out-of-state infrastructure projects located outside of South Carolina.

- (D) The commission may, on a case-by-case basis, determine the extent to which a public utility operating expense may:
- (1) exceed a reasonable level or amount;
 - (2) provide no benefit to the using and consumer public; or
 - (3) not enhance the ability of the public utility to provide efficient and reliable service...

Based on the discussion above Levine prays the Commission will consider the points discussed in deciding whether PUIs request will be approved now or in future ratemaking cases.

3. OPERATING COSTS

In response to request 1-12 in Levine's first set of interrogatories PUI provided in Attachment 1-12 of its response the average sewage treatment flow from 2017 through 2019. The flow trended significantly upwards despite the relatively stable total number of all classes of ERCs reported in the end of year annual reports. The plant operating costs also increased over that time frame resulting in lower revenues and operating margins. PUI stated that it is currently earning an operating margin of 6.533%, which is significantly below the operating margin authorized in its August 2017 rate case. This assertion is what drew my attention to the flow rate through the plant.

I calculated the correlation of the flow rate against the number of ERCs in addition to the monthly average rainfall near the Spears Creek Treatment Plant. The increased flow rate was correlated with a high degree of statistical significance with rainfall and not with the number of ERCs (Attachment 1). From an operational standpoint this suggests that there might be uncontrolled Infiltration/Inflow ("I/I") of storm water. One

of the more significant problems with the City system for the last decade has been overflow from rain events resulting in non permitted and untreated water discharges into the receiving waterway. Since PUI owns a large portion of the former City piping system there may be yet unidentified I/I locations.

It is important to note that during the due diligence period prior to the purchase of the City system PUI the Company did not perform an in depth I/I analysis or conduct any field visits to determine the condition of the 12 City lift stations per the "Evaluation Report Columbia Project prepared for Palmetto of Richland County, LLC" by Joel E. Wood & Associates, LLC, dated January 9, 2013. Mr. Wood states:

A study should be conducted to determine if there is an I/I problem because this can impact the value of the system.

PUI should explain the reason for the increase in operating expenses as well as the increasing trend of wastewater flow and if there is any correlation between the two. If there is I/I above accepted industry operating standards and practices the Commission should consider whether PUI needs to assess the impact on the reported decrease in operating margin and reassess its rate request now rather than delay discovery until the next rate case.

4. CONCLUDING COMMENTS

In this pre-hearing brief I have presented some of the issues that I hope will be taken into consideration by the Commission during the hearing and its final decision. There are a few more items I am reviewing, such as property taxes, and if appropriate will bring forward at the time of the hearing or before if there is no objection by the

Commission or PUI . In addition, due to time constraints I was unable to include exhibits that I feel would be helpful in understanding some of the topics I discussed. This includes but is not limited to the statistical calculations that were done to measure correlations between flow rate, ERCs and rainfall (included with this amendment).



Lisa Levine

May 31, 2020

~~May 28, 2020~~

Blythewood, SC

ATTACHMENT 1

CORRELATION ANALYSES

REVISION 2

Correlation Analyses Data Sets

	Max flow (mgal)	Average rainfall (in)	ERCs	Year
November	6.32	0.96	32291.00	2017
December	6.00	2.10	32187.00	2017
January	6.30	2.96	32261.00	2018
February	6.30	1.88	32341.00	2018
March	6.23	3.42	32421.00	2018
April	6.45	3.18	32501.00	2018
May	5.60	2.47	32581.00	2018
June	6.00	2.13	32661.00	2018
July	5.30	2.24	32743.00	2018
August	6.36	1.87	32821.00	2018
September	8.61	6.92	32901.00	2018
October	9.61	5.07	32981.00	2018
November	8.90	4.02	33061.00	2018
December	9.84	8.25	33141.00	2018
January	7.96	3.62	33233.00	2019
February	6.75	1.53	33325.00	2019
March	8.38	3.61	33417.00	2019
April	7.35	4.21	33509.00	2019
May	7.62	2.67	33601.00	2019
June	7.80	6.29	33693.00	2019
July	6.50	1.93	33785.00	2019
August	7.11	2.36	33877.00	2019
September	6.06	0.28	33969.00	2019
October	6.99	4.20	34061.00	2019
November	9.10	2.44	34153.00	2019
December	10.70	10.25	34271.00	2019

Correlation between Average Monthly Rainfall (in.) and Maximum Flow (mgal)

X values and X axis is Maximum Flow - from PUI response to Interrogatory 1-12

Y values and Y axis is Average Monthly Rainfall - from Community Collaborative Rain, Hail & Snow Network South Carolina <https://www.cocorahs.org/State.aspx?state=SC>

X Values

6.32
6.00
6.30
6.30
6.23
6.45
5.60
6.00
5.30
6.36
8.61
9.61
8.90
9.84
7.96
6.75
8.38
7.35
7.62
7.80
6.50
7.11
6.06
6.99
9.10
10.70

Y Values

0.96
2.10
2.96
1.88
3.42
3.18
2.47
2.13
2.24
1.87
6.92
5.07
4.02
8.25
3.62
1.53
3.61
4.21
2.67
6.29
1.93
2.36
0.28
4.20
2.44
10.25

Result Details & Calculation

X Values

$$\Sigma = 190.14$$

$$\text{Mean} = 7.313$$

$$\Sigma(X - M_x)^2 = SS_x = 51.41$$

Y Values

$$\Sigma = 90.86$$

$$\text{Mean} = 3.495$$

$$\Sigma(Y - M_y)^2 = SS_y = 129.806$$

X and Y Combined

$$N = 26$$

$$\Sigma(X - M_x)(Y - M_y) = 64.154$$

R Calculation

$$r = \Sigma((X - M_x)(Y - M_y)) / \sqrt{(SS_x)(SS_y)}$$

$$r = 64.154 / \sqrt{(51.41)(129.806)} = 0.7853$$

Meta Numerics (cross-check)

$$r = 0.7853$$

Key

X: X Values

Y: Y Values

 M_x : Mean of X Values M_y : Mean of Y Values $X - M_x$ & $Y - M_y$: Deviation scores $(X - M_x)^2$ & $(Y - M_y)^2$: Deviation Squared $(X - M_x)(Y - M_y)$: Product of Deviation Scores

The value of R is 0.7853.

This is a strong positive correlation, which means that high X variable scores go with high Y variable scores (and vice versa).

P Value from Pearson (R) Calculator

This should be self-explanatory, but just in case it's not: your r score goes in the R Score box, the number of pairs in your sample goes in the N box (you must have at least 3 pairs), then you select your significance level and press the button.

If you need to derive a r score from raw data, [you can find a Pearson \(r\) calculator here.](#)

How to report Pearson's r (APA)

R Score:

.7853

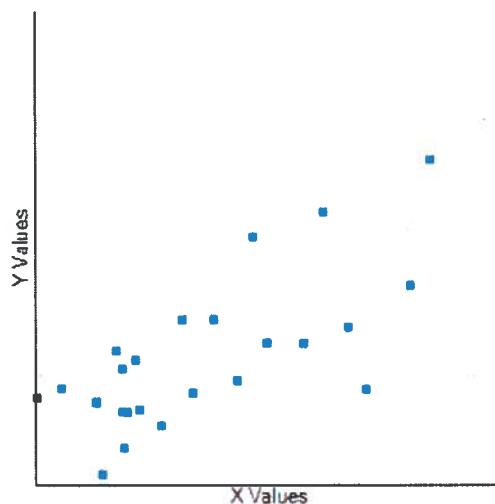
N:

26

Significance Level:

☒ 0.01☐ 0.05☐ 0.10

The P-Value is < .00001. The result is significant at $p < .01$.



Correlation between Flow (mgal) and ERCs - End of Year ERCs were linearly extrapolated to calculate monthly numbers.

X axis and X values are maximum flows (mgal)

Y axis and Y values are ERCs

X Values Y Values

6.32	32291.00
6.00	32187.00
6.30	32261.00
6.30	32341.00
6.23	32421.00
6.45	32501.00
5.60	32581.00
6.00	32661.00
5.30	32743.00
6.36	32821.00
8.61	32901.00
9.61	32981.00
8.90	33061.00
9.84	33141.00
7.96	33233.00
6.75	33325.00
8.38	33417.00
7.35	33509.00
7.62	33601.00
7.80	33693.00
6.50	33785.00
7.11	33877.00
6.06	33969.00
6.99	34061.00
9.10	34153.00
10.70	34271.00

Result Details & Calculation

X Values

$\Sigma = 190.14$
Mean = 7.313
 $\Sigma(X - M_x)^2 = SS_x = 51.41$

Y Values

$\Sigma = 861786$
Mean = 33145.615
 $\Sigma(Y - M_y)^2 = SS_y = 10428550.154$

X and Y Combined

$N = 26$
 $\Sigma(X - M_x)(Y - M_y) = 11322.671$

R Calculation

$r = \Sigma((X - M_x)(Y - M_y)) / \sqrt{(SS_x)(SS_y)}$

$r = 11322.671 / \sqrt{(51.41)(10428550.154)} = 0.489$

Meta Numerics (cross check)

$r = 0.489$

The value of R is 0.489.

Although technically a positive correlation, the relationship between your variables is weak (*nb* the nearer the value is to zero, the weaker the relationship).

[Click here to calculate a p-value.](#)

The value of R^2 , the coefficient of determination, is 0.2391.

Key

X : X Values

Y : Y Values

M_x : Mean of X Values

M_y : Mean of Y Values

$X - M_x$ & $Y - M_y$: Deviation scores

$(X - M_x)^2$ & $(Y - M_y)^2$: Deviation Squared

$(X - M_x)(Y - M_y)$: Product of Deviation Scores

R Score:

.489

N:

26

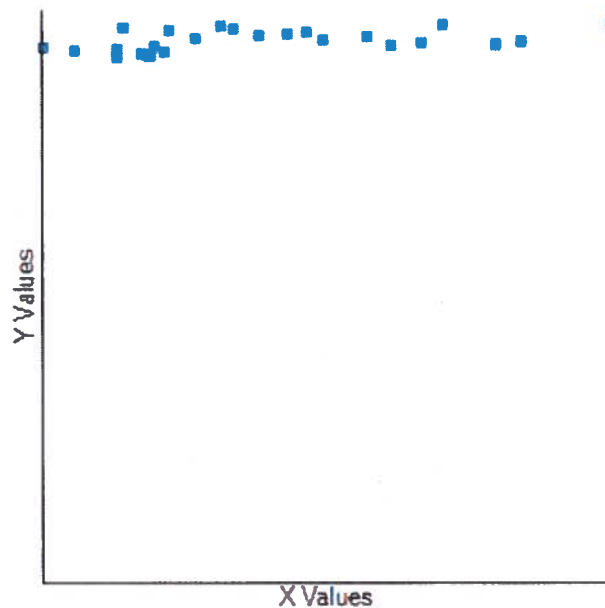
Significance Level:

☒ 0.01

☐ 0.05

☐ 0.10

The P-Value is .011242. The result is *not* significant at $p < .01$.



STATE OF SOUTH CAROLINA

BEFORE THE PUBLIC SERVICE COMMISSION

DOCKET NO. 2019-281-S

IN RE:)
)
APPLICATION OF PALMETTO UTILITIES)
INC. FOR AN INCREASE OF RATES AND)
CHARGES FOR THE PROVISION OF SEWER)
SERVICE AND MODIFICATIONS TO CERT-)
AIN TERMS AND CONDITIONS OF THE)
PROVISION OF SEWER SERVICE.)
)

2nd AMENDED
LISA LEVINE, PRO SE
CERTIFICATE OF
SERVICE

This is my 2nd amended pre-hearing brief. Attachment 1, correlation analyses, was added to the first amended brief. I received PUIs response to my 2nd interrogatory after the original and amended filings. The only changes in this filing are in Attachment 1. The data sets (flow, rainfall and ERCs) were changed to span from November 2017 (rather than January 2017) to the end of December 2019 based on the discovery that the City system was connected to the Spears Creek plant in the beginning of October 2017. The interpretations and conclusions within the original and first amended brief remain unchanged.

This is to certify that I, Lisa Levine, have this day
served one (1) copy of the 2nd amended pre-hearing brief upon

the following parties to this proceeding by causing said copy to be electronically mailed, addressed as shown below:

John M.S. Hoefer, Esquire
Email: jhoefer@willoughbyhoefer.com

Jeffrey M. Nelson, Esquire
Email: jnelson@ors.sc.gov
Christopher Huber, Esquire
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Email: jpittman@ors.sc.gov



Lisa Levine

May 31, 2020, Blythewood, SC